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ABSTRACT

Sex-role differentiation in 337, 3-, 4-, and 5-year-old boys and girls, approximately equally divided into lower- and middle-income groups, was measured by five sex-role tests: (1) the Draw A Person Test (DAP): (2) Occupational Preference Test (OPT): (3) Nadelman Recall Test (NRT): (4) Toy Preference Test (TPT): and (5) It Scale for Children, Biller modification (BIT). A composite score was also used for increased reliability. In order to investigate the reliability of the measure, the study was replicated. It was hypothesized that sex-role differentiation would be evident by age 3 for boys and girls at both lower and middle-income levels: that such differentiation would increase with age: and that lower-income children would show stronger sex-role differentiation than middle-income children. The results showed that boys and girls differed significantly on all tests and the composite at each age level: that boys and girls were significantly more differentiated from each other with age on the composite score: and that the age-by-sex interaction was significant on the DAP and BIT in Study I, and the BIT, TPT, and NRT in Study II. Income level had only little effect on sex role differentiation. The findings are discussed in light of previous studies. Implications of the results for the use of sex-role tests are also discussed. (Author/MP)

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Age, Sex, and Income Level Effects on Sex-Role Differentiation in Preschoolers[1]

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SUMMARY

Sex-role differentiation in 337, 3-, 4-, and 5-year-old girls and boys, approximately equally divided into lower- and middle-income groups, was measured by five sex role tests. A composite score was also used for increased reliability. The study was replicated in order to investigate the reliability of the measures. The results showed that sex, and to a partial degree, age, had significant effects, but that income level had little effect on sex-role differentiation. The findings are discussed in light of previous studies. Implications of the results for the use of sex-role tests are also discussed.

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A. INTRODUCTION

Sex role differentiation has been widely studied as one of the most basic processes in personality development. Yet, important questions remain, both about what sex role differentiation is (the end product), and how it develops (the process). This paper presents one aspect of a multifaceted study of sex role differentiation in the preschool years. The term sex role differentiation was used in this study in its broadest sense to refer to both the process and end product of learning what society considers exclusively, or more, appropriate for one sex or the other. The focus of the present paper is on how the factors of age, sex, and income level are related to sex role differentiation. These variables were investigated because previous studies of the effects of age, sex, and socioeconomic status on sex role differentiation have reported results that conflicted or are difficult to interpret. A representative sample of such studies follows.

1. Age Differences

Studies of the relationship of age to sex role differentiation fall into two categories: those that investigate when such development begins; and those that look at the changes in sex role differentiation over time. Each of these types of studies will be considered in turn.

a. Age of onset of sex role differentiation.

Studies have consistently found that sex role differentiation is fairly well established by age 5. For example, Hartup and Zook (12) found that sex-typing was already present in 3- and 4-year-old boys and girls on the It Scale for Children (ITSC) (4). Schell and Silber (23) reported sex-typing on the ITSC in both 3- and 4-year-old subjects. In addition, they found that boys and girls in both age groups showed the ability to make culturally expected sex-typed discrimination appropriate to opposite as well as to own sex. Papalia and Tennent (20) studied sex role differentiation in 3- to 5-year-olds by investigating children's vocational aspirations. They found that both boys and girls made highly sex-typed occupational choices. Goldberg (9) found sex-typing in children 2½ to 5½ years of age on a number of sex role tests, although she reported that the degree of sex-typed behavior was not consistent across the various measures. In summary, studies have found that sex role differentiation is present in children at least as early as 2½ years of age and is fairly well established by age 5.

b. Changes in sex role differentiation over time.

Among school-age children, sex role differentiation has generally been found to increase with age, but the patterns of change reported varied with the age and sex of the subjects studied, as well as according to the measures used. A number

of studies found that sex-typing increased with age for both sexes. Nadelman (19) found that 8-year-old boys and girls were more sex-typed in activity preferences than a group of kindergarten children. Hartup and Moore (11) examined avoidance of inappropriate sex-typed preferences, and found that children from 3 to 8 increasingly avoided sex-inappropriate toys. Bieliauskas (1) studied sexual identification in drawings of human figures by children from ages 5 to 15 years. Sex of figure drawn was taken as an index of sexual identification. He found that the tendency to draw a person of one's own sex increased with age, particularly after the ninth year. Haworth and Normington (13) developed a scale which they considered a test of psychosexual maturity, as measured by the ability to distinguish between male and female figures. They found a gradually increasing ability to distinguish between the sexes in their subjects, who ranged from ages 7 through 12.

Several studies found an age-by-sex interaction. For example, Brown (5) found that sex-typing on the ITSC increased from kindergarten through fifth grade for boys, but that the performance of fourth grade girls was less feminine than that of younger girls. Kohlberg and Zigler (15) reported a pattern similar to Brown's, but among younger subjects. They found that boys increased in masculinity on the ITSC from ages 4 to 7, while girls became more feminine from 4 to 5, but decreased in femininity between the

ages of 5 and 6. DeLucia (7), on the other hand, found a progressive increase in sex-appropriate toy preferences in both boys and girls from kindergarten through third grade, but in the fourth grade boys and girls made more sex-inappropriate choices than they had in third grade.

Few studies have examined the effect of age on sex role differentiation within the preschool years. Those that have have generally found increasing sex role differentiation with age, although the degree of increase varied from study to study. Brown (5) and Hartup and Zook (12) found that sex-typed performance on the ITSC increased from ages 3 to 4. Schell and Silber (23) studied sex role discrimination in 3- and 4-year-olds by presenting the ITSC under different sets of instructions. They did not compare the degree of sex-typing, but found that 4 year olds were better than 3 year olds in making various sex-typed discriminations. On the other hand, Goldberg (9) found only a tendency for 4 year olds to be more sex-typed than 3 year olds on a battery of sex-role measures.

In general, then, studies have found that the degree of sex role differentiation increases with age. However, since all of the studies were age cross-sectional, it is not at all certain that the same results would obtain in a longitudinal investigation.

2. Sex Differences

Studies have consistently found that boys show earlier and stronger sex-typing than girls. Hartup and Zook (12) found that 3- and 4-year-old boys showed more same-sex preferences than girls on the ITSC. Brown (5) also found greater sex-typing among boys than girls on the ITSC, from kindergarten through fifth grade. DeLucia (7) reported that from kindergarten through fourth grade, boys consistently made more sex-appropriate toy preference choices than did girls. On a battery of sex role tests that she developed, Nadelman (19) also found that boys were more sex-typed than girls. Bieliauskas (1) reported that from 5 years of age through 15, more boys than girls drew their own sex when asked to draw a person. And in line with the findings that boys show stronger sex-appropriate preferences than girls, Hartup and Moore (11) reported that the tendency to avoid sex-inappropriate toys may be more general in boys than in girls.

3. Socioeconomic Status

Research findings on the relationship of socioeconomic status to sex role differentiation are conflicting. One problem with such research, of course, is the difficulty in defining socioeconomic levels. In the present study, income level of the school was used as the index of status, but this review includes studies that have used various other indicators.

Evidence indicates that social class affects sex role differentiation (10, 14). For example, sex roles are defined more narrowly in the lower class (21, 22); while in the upper class, boys and girls are treated similarly in some important areas (21). Such differences in the attitudes and socialization practices of the social classes would seem to indicate that lower-class children would be more sex-typed than middle-class children. However, research findings are not consistent, even within the same study.

Rabban (22) reported that lower-class children showed earlier sex role differentiation and were more sex-typed in their toy preferences than middle-class children. Hall and Keith (10), using the ITSC, found a sex-by-social-class interaction. They found that lower-class third- and fourth-grade boys were more sex-typed than middle-class boys, but reported no differences between lower- and middle-class girls. Their indices of social class were place of residency and father's occupation. Nadelman (19) reported an age-by-sex-by-social-class interaction. She found no difference between working-class and middle-class 5 year olds on a toy preference test. With an 8-year-old group there were also no differences between the boys, but the middle-class girls were less sex-typed than the working-class girls. Nadelman defined social class in terms of occupation, education, and residency. Lefkowitz (16) reported results in the direction opposite to the expected. Her upper-status group (as measured by occupational level), made more sex-typed choices on the

Lefkowitz Games and Activities Preference List than did the lower-status group.

Some studies have reported no differences between social classes. Hartup and Zook (12) found no difference in degree of sex-typing on the ITSC between lower- and middle-class 3 and 4 year olds. Subjects were considered lower class if they attended public daycare, middle class if they were enrolled in a private nursery school. Brown (4) subdivided his middle-class group of kindergarten children on the basis of father's occupational status into upper-middle and lower-middle classes. No differences were found in their performances on the ITSC.

This review has summarized previous findings of the effects of age, sex, and socioeconomic status on sex role differentiation. It has also indicated some of the difficulties and limitations of sex role research, such as frequently conflicting or confusing results. For example, sex role differentiation has been found to vary according to the age and sex of subjects, but not in a consistent pattern across various studies.

One source of the inconsistency among studies is the sex role tests, since results sometimes vary according to the particular test used. Questionable reliability and validity of many of the tests is a major problem in sex role research.

Another area of confusion in interpreting findings from different studies is the many sex role terms that are used, including sex role identification, preference, adoption, knowledge,

and typing. Several authors (e.g., Brown [4]) have pointed out that there are different components of sex role, and that specific terms should be used to refer to each of these aspects. Frequently, however, sex role terms are not clearly defined, or are used interchangably. Therefore, it is often hard to compare results across studies because it is not clear if they are studying the same process.

The present study attempted to deal with the methodological problems discussed, and to clarify existing information by extensive testing of preschool children, focusing on the effects of age, sex, and income level on sex role differentiation. Since inferences about sex role differentiation in children have been based on relatively small samples, a large group of children was studied.

We hypothesized that sex role differentiation would be evident by age 3 for boys and girls at both lower- and middle-income levels; that such differentiation would increase with age; that lower-income children would show stronger sex role differentiation than middle-income children.

Since reliability and validity of measures have been major issues in previous research, a battery of five sex role tests was used. According to their authors, two of the tests were measures of sex role identification, two of sex role preference and one of sex-typing. A composite score was derived, based on the five measures, and was used for increased reliability and ease of explanation. The study was replicated in order to investigate

the reliability of the measures. The replication is discussed as Study 2 in this paper.

B. STUDY 1

1. Method

a. Subjects

All subjects in 10 3-year-old, eight 4-year-old, and six 5-year-old classes, equally divided between lower- and middle-income level schools participated in the larger study. A school was considered lower income if it was a daycare center and had a sliding fee scale; middle income if it was a private nursery with fees ranging between $550 and $650 for 10 months. (For a complete description of the two groups, see [24].) Four hundred and forty-seven subjects were tested in the beginning and/or at the end of the school year. Three hundred and thirty-seven of these subjects took both administrations of at least one test. This paper discusses the results obtained from the group of 337 subjects. The 169 males and 168 females were approximately equally represented in the two income levels and the three age groups. Table 1 shows the number of subjects of each age, sex, and income level who took each test in both Fall (Study 1) and Spring (Study 2).

Insert Table 1 about here

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b. Instruments

A battery of five sex role tests was used. Following is a brief description of each test, including how it was scored and what its author assumed it was measuring. (Each measure is described in more detail in Seegmiller, Dunivant, and Suter [24].) For consistency in discussing results, a higher score reflects a greater degree of masculinity on all of the tests.

(1) The Draw A Person Test (DAP)

The child was asked to draw a person, and then to draw a person of the sex opposite to the first figure drawn. Biller's (2) scoring system is a composite of first sex drawn (assumed to indicate stronger identification) and degree of differentiation between the two figures. In order to control for the cognitive component in the scores, we collapsed the scoring system into two categories, disregarding the differentiation-undifferentiation factor. A subject earned two points if he or she draw a male first; one point if a female was drawn first.

(2) Occupational Preference Test (OPT)

Children were asked what they wanted to be when they grew up, and were asked to give three choices. This is a test of sex role preference (3). We used Brophy and Laosa's (3) scoring system in which each occupation is rated on a scale from 1 to 5, but we reversed the direction of the scale so that 1 represents a traditionally feminine occupation and 5 a traditionally

masculine one. Each score was the average rating of the three choices, and scores could range from 1 to 5.

(3) Nadelman Recall Test (NRT)

This was a modification of Nadelman's (19) procedure. Children were presented with pictures of eight masculine and eight feminine objects, one at a time, and had to immediately recall the items. The test assumes differential memory for same/opposite sex items, and purports to measure sex-typing. Since we did not want the test score to be largely determined by the child's memory ability, the Nadelman was scored in terms of the relative dominance of masculine over feminine items recalled. The formula used for scoring was:

$$\frac{(\#\text{ of masculine items recalled}) - (\#\text{ of feminine items recalled})}{(\#\text{ of masculine items recalled}) + (\#\text{ of feminine items recalled})}$$

Scores could range from -1 (dominance of feminine over masculine items remembered) to +1 (dominance of masculine over feminine items remembered).

(4) Toy Preference Test (TPT)

In this modification of DeLucia's (7) test of sex role identification, subjects were shown pictures of 24 pairs of toys, and were asked to specify which a pictured little girl (for girls) or boy (for boys) would like to play with. Ten of the pairs showed toys that had both been rated masculine, but differed in degree of masculinity. Ten pairs consisted of toys both rated

feminine, but with one of the pair more feminine; and four pairs presented one masculine and one feminine toy. More masculine choices were scored "1," feminine "0." Total scores could range from 0 to 24.

(5) It Scale for Children, Biller modification (BIT)

Biller's (2) modification of Brown's (4) procedure was used to control for the possibly masculine appearance of the "It" figure. Subjects were shown a line drawing of a face, called "the child" rather than "It," and were asked to make choices for "the child" from among series of pictures of masculine and feminine toys and activities. Total scores could range from 1 (all feminine choices) to 84 (all masculine choices).

(6) Composite score.

Since the factor analysis (8) indicated that there was only one sex role factor, the use of a composite score was justified, and was used for increased reliability and ease of explanation. In order to equally weight the tests, which were of different lengths, z scores for each test for each subject were derived. The composite scores is the mean of the subject's z scores on the five sex role tests.

c. Procedure

Children were individually tested at the beginning of the school year in a room the school made available for that purpose. Most of the 16 testers (eight males, eight females) were

graduate students. All testers had previous experience with children and had been trained to administer the sex role tests. Half the boys and half the girls at each age level were tested by a male, and half by a female. All of the testers were known to the children. The test battery took approximately 40 minutes to administer; when that was too long for a child, he or she was tested in two sessions. The sex role measures were given in a predetermined alternating order to balance out possible order effects.

2. Results

Preliminary analyses indicated no significant differences attributable to tester sex (26). Therefore, data were collapsed across this category for all analyses presented here. Mean scores on each of the five tests and the composite score broken down by age, sex, and income level are presented in Table 2. Scores on

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Insert Table 2 about here

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each test were analyzed separately through a series of 2 (sex) by 2 (income level) by 3 (age) factorial ANOVAs. Table 3 summarizes the results of the ANOVAs. In all cases, Fisher's "protected *t*"

Insert Table 3 about here

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(6) was used to test mean differences. All differences reported as significant reached at least the .05 level.

a. Age

The analyses indicated that the main effect of age was significant on the NRT, $F(2, 231) = 42.67$, $p < .001$. As Table 4 shows, the 4s made more masculine choices than both the 5s ($t[2, 231] = 271.8$, $p < .001$) and the 3s ($t[2, 231] = -23.1$, $p < .001$), who in turn had more masculine scores than the 5s ($t[2, 231] = 229.3$, $p < .001$). There were no significant differences due to age alone on the DAP, OPT, TPT, BIT, or composite score.

Insert Table 4 about here

b. Sex

As shown in Table 3, there were highly significant differences associated with sex on all five sex role tests and the composite (all $p < .001$). As the means in Table 2 show, boys had significantly higher scores than girls on all tests and on the composite. Boys' performance was also less variable than the girls' on the OPT (boys' $SD = .72$; girls' = 1.33) and on the BIT (boys' $SD = 16.65$; girls' = 19.76).

c. Income Level

The main effect of income level was significant on the NRT, $F(2, 231) = 6.58$, $p < .001$. As shown in Table 2, the middle-income group had a higher score on the NRT than the lower-income group. There were no significant differences due to income level alone on the DAP, OPT, TPT, BIT, or composite scores.

d. Interaction Effects

(1) Age by Sex.

The difference between boys and girls varied as a function of age on the DAP, BIT, and the composite score, as indicated by a significant age-by-sex interaction (shown in Table 3). Although boys were significantly more masculine than girls in all three age groups, the mean difference between the sexes on the DAP was greatest for the 5s (M difference = .45, .35, and .63 for the 3s, 4s, and 5s respectively). The same pattern was found on the BIT (M difference = 19.50, 25.29, and 33.60 for the 3s, 4s and 5s respectively) as well as on the composite (M differences = .93, .89, and 1.24 for the 3s, 4s and 5s), but the reasons for the pattern were different in each case. On the DAP, the increased difference between the sexes at age 5 was because the boys at 5 achieved more masculine scores than did the boys at 4. On the BIT, the difference between the sexes at 5 was because the 5-year-old girls made less masculine choices than at 4. On the composite, both sexes achieved more sex-appropriate scores at 5 than did the 4s.

(2) Age by Income Level

Differences between income groups varied by age on the DAP, as indicated by the significant age-by-income-level interaction, F (2, 276) = 3.73, $p < .05$. There were no significant differences between income groups at ages 3 and 4. However, the 5-year-old middle-income group drew significantly more males first (i.e.,

had higher scores) than did the 5 year olds in the lower-income group, t (2, 276) = -2.10, $p < .05$.

(3) Age by Sex by Income Level

A significant three-way interaction was found on the TPT (F [2, 320] = 5.5, $p < .001$) and on the NRT (F [2, 231] = 3.03, $p < .001$). On the TPT, in the lower-income group, the differences between the sexes were of equal magnitude at ages 3 and 5. Boys and girls were most similar at age 4 because the girls at 4 gave more masculine responses than either the 3- or 5-year-old girls did (M difference = 3.64, 1.56, and 3.93 for the 3s, 4s, and 5s respectively). In the middle-income group, the differences between the sexes on the TPT were the same at ages 4 and 5. Boys and girls were most similar at age 3, because the girls made more masculine choices at 3 than at 4 or 5 (M difference = 1.54, 4.06, and 4.08 for the 3s, 4s and 5s).

On the NRT, in the lower-income group, the difference between the sexes was greatest at 3, because males made more masculine responses at 3 than at 4 or 5 (M difference = 1.03, .38, and .50 for the 3s, 4s, and 5s). In the middle-income group, the difference between the sexes was of equal magnitude at each age level (M difference = .23, .30, and .64 for the 3s, 4s, and 5s).

C. STUDY 2

1. Method

a. Subjects

Subjects in Study 2 were the same as in Study 1 (see p. 10 for description).

b. Instruments

The tests used in Study 1 were also used in Study 2 (see pp. 11-13 for description).

c. Procedure

At the end of the school year, tests were administered as in Study 1. There were 12 testers, five males and seven females. Five of these testers had also participated in Study 1. Sex of tester was counterbalanced from Study 1.

2. Results

Mean scores are presented in Table 2. Statistical procedures were the same as in Study 1. Results of the 2 x 2 x 3 factorial ANOVAs are presented in Table 5. The degree of change in

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Insert Table 5 about here

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performance on sex role tests from Study 1 to Study 2 is discussed in another paper (24).

In general, the results are consistent with those of Study 1, in which the most significant differences were attributable to the

main effect of age, or to age-by-sex interactions.

The main effect for age was not significant for any of the sex role tests or for the composite score. As Table 3 shows, significant sex differences were found on all five sex role tests and on the composite score (all *ps* <.001). Boys had significantly higher scores than girls on all sex role tests (see Table 2). Boys' performance was also less variable than the girls' on the OPT (boys' *SD* = .64; girls' *SD* = 1.18). Income level did not significantly affect performance on any of the sex role tests, or the composite score.

The only significant interaction was an age-by-sex interaction on the BIT, TPT, NRT, and the composite score. The difference between boys and girls increased with age on the TPT (*M* difference = 1.88, 3.53, and 4.99 for the 3s, 4s and 5s) and on the composite (*M* difference = .90, 1.19, and 1.34 for the 3s, 4s, and 5s).

On the BIT, the difference between the sexes was greater at 4 than at 3, because both boys and girls made more sex-appropriate choices at 4. The difference between the sexes at 5 was not significantly greater than at 4 (*M* difference = 20.55, 32.08, and 38.92 for the 3s, 4s, and 5s). On the NRT, the differences between the sexes were of equal magnitude at 3 and 4, and the sexes were most similar at age 5. This was because the boys made less masculine choices at 5 than at 4, and also because the girls made more masculine choices at 5 than at 4 (*M* difference = .57, .51, and .21 for the 3s, 4s and 5s).

The age-by-sex interaction was not significant on the DAP or OPT.

D. DISCUSSION

The results of the present studies confirmed the effects of sex, and partially confirmed the effects of age, but did not support the hypothesized effects of income level on sex role differentiation.

Boys and girls differed significantly on all tests and the composite at each age level, in both Studies 1 and 2. Thus the hypothesis that sex role differentiation would be evident at age 3 was confirmed. This finding is consistent with previous results (5, 9, 12, 20, 23) and supports Hartup and Zook's (12) statement that the child beginning preschool has already been exposed to sufficient information and training to have developed at least certain kinds of sex-typed responses.

Boys and girls were significantly more differentiated from each other with age on the composite score in both Studies 1 and 2. However, this pattern was not consistent across the individual tests in either study. The age-by-sex interaction was significant on the DAP and BIT in Study 1, and the BIT, TPT, and NRT in Study 2.

The OPT was the only test on which there was no increased difference between the sexes in either Study 1 or Study 2. At age

3 boys were already highly sex-typed on the OPT, i.e., their scores were near the masculine extreme of the scale. Boys at ages 4 and 5 stayed in this position. In contrast, the 3-year-old females' scores did not reflect an exclusively masculine or feminine orientation, i.e., their scores reflected both masculine and feminine occupational choices. Girls at ages 4 and 5 showed the same pattern as the 3 year olds. These results are consistent with the common finding that boys show earlier sex-typing than girls, and may also reflect both that most occupations named were rated more masculine than feminine by judges, and that male occupations have more status. Thus, girls may be more likely to give an opposite sex response because there are more masculine occupations, they are more prestigious, and it is more permissible for females to make opposite sex choices.

It may be that the pattern of increased sex role differentiation with age was not consistent across tests because sex role differentiation is neither a unidimensional, nor an evenly developing process. Therefore, change may have occurred sooner in some areas than others, and this was reflected in test performance.

Previous research has also found that sex role differentiation did not change as consistently (9), or to as great a degree (5, 12) in preschoolers as it did in older children.

The increase in sex role differentiation that occurs with age is probably due to two major factors. One is that with increasing age children are able to make finer discriminations and thereby

learn their sex roles better. Second, as children get older they have more experience with and are more frequently exposed to socializing influences outside the home, such as peers, teachers, and schools. With increasing age, these agents may exert more pressure to conform to sex-appropriate standards.

Income level had little effect on sex-role differentiation. The only difference between the income groups was that the lower-income children were less masculine than the middle-income group on the NRT.

Since the groups were categorized on the basis of sliding-fee vs. tuition, one possibility is that the lower/middle income distinction was not a valid one. However, this distinction was confirmed by analyses which showed that the two groups differed significantly on a wide variety of demographic variables. For example, lower income children more often came from single-parent families, and more frequently had mothers in lower status jobs than did middle-income children. Yet, these and other SES characteristics were found to be unrelated to sex role differentiation in our sample (25). Previous studies of the effects of SES on sex role differentiation have yielded conflicting results. Since most of the studies that have found SES related differences have been of children older than 5 years of age, it may be, as previous writers (17) have suggested, that certain parental characteristics are not salient for sex role differentiation in the preschool years. It may be that other environmental variables

are more influential during this period. Seegmiller et al. (25), for example, found that siblings significantly affected sex role differentiation in preschoolers. Further research is needed to determine which aspects of a child's environment have the most effect on sex role differentiation.

In addition to studying the effects of age, sex, and income level on sex role differentiation, the present study also attempted to overcome some of the methodological limitations of previous sex role research, as discussed in the introduction. For example, the problem of small samples was met by using a large number of subjects; and the limitation of low test reliabilities was dealt with by deriving a composite score, and replicating the study.

The confusion surrounding sex role terms and the question of what aspects of sex role the different tests measure were more difficult to deal with. Although we specified what each test purported to measure, authors' definitions are open to question. For example, Brown (4) termed the It Scale for Children (ITSC) a measure of sex role preference, while Schell and Silber (23) stated that the ITSC is more appropriately defined as a test of sex role knowledge, i.e., what a child knows about the stereotypic appropriateness of certain toys and activities for a given sex. Biller (2) considered his modification of the ITSC, which was used in the present study, a test of sex role identification. DeLucia (7) defined her Toy Preference Test (TPT) as one of sex role identification also. However, since subjects make choices

for a same-sex child on the TPT, rather than one of ambiguous sex, as is done in Biller's modification of the ITSC, the TPT might be more appropriately defined as a test of sex role knowledge.

The results of a factor analysis (8) clarify the issue of what the different sex role tests measure. The factor analysis indicated that while the tests were measuring the same construct, "sex role differentiation," the common variance among them was quite low. Causes for the inconsistencies among the tests were not found. Tests purporting to measure the same aspect of sex role were no more highly correlated with each other than with other tests. Therefore, we are not on firm ground when we talk about one test measuring sex role identification vs. another measuring sex role preference, etc. Further research is needed to determine what is being uniquely measured by each sex role test.

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FOOTNOTE

[1]This study is part of a larger longitudinal research project, Sex-role socialization in the nursery school," supported by NIMH grant no. 26039 to Bonni R. Seegmiller. The cooperation of the directors, teachers, and children at the nursery schools that participated in the study is greatly appreciated. The larger study is described in-depth in reference (24). Requests for reprints should be sent to the first author at 498 West End Ave., N.Y., N. Y. 10024.

TABLE 1

NUMBER OF SUBJECTS TAKING BOTH STUDY 1 AND STUDY 2 ADMINISTRATIONS OF EACH TEST

	DAP	OPT	NRT	TPT	BIT	Composite
Lower income	155	103	128	171	170	171
Males	79	57	66	87	87	87
Threes	19	9	15	21	21	21
Fours	31	25	23	35	35	35
Fives	29	23	28	31	31	31
Females	76	46	62	84	83	84
Threes	22	8	19	28	27	28
Fours	25	16	20	26	26	26
Fives	29	22	23	30	30	30
Middle income	133	112	115	151	165	166
Males	63	59	55	81	82	83
Threes	20	17	13	28	29	29
Fours	26	20	23	31	31	31
Fives	17	22	19	22	22	22
Females	70	53	60	70	83	84
Threes	24	15	18	30	32	32
Fours	20	17	18	23	23	24
Fives	26	21	24	27	28	28
Total sample	288	215	243	322	335	337

TABLE 2

MEAN SCORES ON EACH TEST, IN STUDY 1 AND STUDY 2 OF SUBJECTS IN EACH AGE, SEX, AND INCOME LEVEL CATEGORY

	DAP		OPT		NRT		TPT		BIT		Composite	
	1	2	1	2	1	2	1	2	1	2	1	2
Lower income	1.50	1.59	3.83	3.85	-0.09	-0.00	13.00	12.47	45.78	46.29	-0.02	0.01
Males	1.72	1.87	4.65	4.71	0.18	0.21	14.51	14.26	58.96	61.03	0.49	0.59
Threes	1.63	1.89	4.50	4.86	0.64	0.46	14.43	13.62	57.90	55.48	0.57	0.57
Fours	1.71	1.84	4.59	4.63	0.08	0.14	14.06	14.29	59.77	60.14	0.56	0.57
Fives	1.79	1.90	4.78	4.74	0.02	0.13	15.06	14.68	58.77	65.81	0.64	0.64
Females	1.28	1.29	2.82	2.79	-0.39	-0.23	11.44	10.62	31.96	30.83	-0.55	-0.59
Threes	1.36	1.36	3.00	3.05	-0.39	-0.22	10.79	11.00	36.67	35.44	-0.47	-0.47
Fours	1.46	1.32	2.92	3.22	-0.30	-0.41	12.50	10.65	36.69	27.50	-0.64	-0.64
Fives	1.10	1.21	2.67	2.38	-0.48	-0.08	11.13	10.23	23.63	29.57	-0.65	-0.65

(continued)

TABLE 2, continued

	DAP		OPT		NRT		TPT		BIT		Composite	
	1	2	1	2	1	2	1	2	1	2	1	2
Middle income	1.49	1.57	3.92	3.93	0.09	-0.13	13.02	12.79	44.82	45.30	0.00	-0.01
Males	1.76	1.92	4.61	4.64	0.30	0.09	14.59	14.44	57.74	60.76	0.51	0.55
Threes	1.75	1.90	4.64	4.81	0.32	0.13	13.57	13.25	53.48	55.14	0.41	0.41
Fours	1.65	1.96	4.65	4.42	0.26	0.22	15.06	14.55	59.61	60.93	0.59	0.59
Fives	1.94	1.88	4.54	4.71	0.34	-0.06	15.23	15.82	60.73	67.91	0.68	0.68
Females	1.24	1.26	3.15	3.14	-0.11	-0.33	11.44	11.11	32.05	30.04	-0.41	-0.56
Threes	1.12	1.33	3.61	3.37	0.09	-0.33	12.03	12.03	35.31	34.12	-0.42	-0.40
Fours	1.25	1.25	3.03	3.09	-0.04	-0.39	11.13	11.13	31.83	29.48	-0.52	-0.59
Fives	1.35	1.19	2.92	3.01	-0.30	-0.30	11.15	10.07	28.50	25.82	-0.55	-0.72

NOTE. Tests are scored in the masculine direction.

TABLE 3

SUMMARY OF ANOVAs OF SEX ROLE SCORES IN STUDY 1

BY CHILD SEX BY AGE GROUP BY INCOME LEVEL: *Fs*, *ps*, *dfs*

Source of variation	df	DAP	OPT	NRT	TPT	BIT	Composite
Age (A)	2	0.44	0.78	3.99*	0.99	1.79	0.55
Sex (B)	1	86.54***	128.70***	42.67***	118.95***	172.41***	445.31***
School type (C)	1	0.01	0.53	6.58**	0.07	0.14	0.70
A x B	2	3.13*	1.37	1.26	2.76	4.27**	5.45**
A x C	2	3.73*	0.45	0.21	0.15	0.99	1.24
B x C	1	1.09	1.23	1.38	0.17	0.01	0.02
A x B x C	2	1.52	0.26	3.03*	5.50**	0.42	2.99
Residual *df*		276	203	231	320	323	325
Residual *MS*		0.19	1.10	0.37	6.56	328.40	0.19

*$p < .05$.

**$p < .01$.

***$p < .001$.

TABLE 4

MEAN SCORES ON EACH TEST IN STUDY 1 AND STUDY 2
OF SUBJECTS IN EACH AGE GROUP AND OF EACH SEX

	DAP		OPT		NRT		TPT		BIT		Composite	
	1	2	1	2	1	2	1	2	1	2	1	2
Threes	1.45	1.60	4.03	4.09	0.13	-0.02	12.58	12.39	44.83	44.16	0.00	-0.02
Males	1.69	1.90	4.59	4.82	0.49	0.30	13.94	13.40	55.34	55.28	0.45	0.47
Females	1.24	1.35	3.40	3.26	-0.15	-0.27	11.43	11.53	35.93	34.73	-0.48	-0.43
Fours	1.53	1.63	3.92	-3.95	0.01	-0.08	13.36	12.90	48.92	46.84	0.09	0.06
Males	1.68	1.89	4.62	4.54	0.17	0.18	14.53	14.40	59.69	60.52	0.47	0.57
Females	1.33	1.29	2.98	3.16	-0.18	-0.39	11.79	10.87	34.40	28.42	-0.42	-0.62
Fives	1.50	1.51	3.75	3.73	-0.12	-0.07	13.06	12.56	42.03	46.34	-0.07	-0.04
Males	1.85	1.89	4.66	4.73	0.15	0.05	15.13	15.15	59.58	66.68	0.58	0.66
Females	1.22	1.20	2.79	2.69	-0.39	-0.19	11.14	10.15	25.98	27.76	-0.66	-0.68
Totals: Males	1.74	1.89	4.63	4.67	0.24	0.16	14.55	14.35	58.37	60.90	0.50	0.57
Females	1.26	1.27	2.99	2.98	-0.25	-0.28	11.44	10.86	32.01	30.43	-0.52	-0.57

NOTE. Tests are scored in the masculine direction.